

REMARKS

By this amendment, claims 6, 8, 10-12, 17-19, and 21 have been amended, claims 1-5, 7, 9, 13-16, and 20 have been canceled, and new claims 22-29 have been added. Support for the changes to claim 6 can be found through the specification as originally filed, for example, in canceled claim 7. Support for the changes to claim 8 can be found through the specification as originally filed, for example, in canceled claim 9. Claims 6 and 17 have been amended to clarify that the present invention comprises introducing one gas from among a plurality of gases, measuring the amount of the one introduced gas exhausted, and introducing another gas when the amount of the one introduced gas falls below a predetermined amount. No new matter has been added. Claims 6, 8, 10-12, 17-19, and 21-29 are presented for further examination.

Applicants respectfully submit that any grounds which may have existed for the objection to claims 7, 9, and 11 under 37 C.F.R. §1.75(c) and the objection to claims 9 and 11 because of informalities, are believed obviated by the foregoing cancellation of claims 7 and 9 and amendment of claim 11. In particular, the dependency of claim 11 has been amended.

The rejection of claims 1, 6, 7, and 19 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 6,716,477 ("Komiyama"), the rejection of claims 2-5 and 20 under 35 U.S.C. § 103(a) as allegedly unpatentable over Komiyama, the rejection of claims 13 and 17 under 35 U.S.C. § 103(a) as allegedly unpatentable over Komiyama, and the rejection of claims 14-16 under 35 U.S.C. § 103(a) as

allegedly unpatentable over Komiyama, are respectfully traversed with respect to the amended claims.

Regarding amended independent claims 6 and 17, the processing device and method of the present invention are preferably used in processes, such as atomic layer deposition (ALD), in which the chamber atmosphere needs to be efficiently changed and a vapor phase reaction needs to be prevented. Thus, the present invention comprises introducing one gas from among a plurality of gases into a chamber, measuring the amount of the one introduced gas using measuring means arranged between first exhaust means and second exhaust means, and introducing a gas other than the one introduced gas based on measurements of the amount of the one introduced gas.

When a measurement of the amount of the one introduced gas is taken and shows that the amount is below a predetermined value, another gas can be introduced. A vapor phase reaction between the first introduced gas and the later introduced gas can be prevented, and the chamber atmosphere can be quickly changed.

Komiyama comprises comparing information on FT-IR measurements of the amount of an exhaust gas with predetermined normal process conditions, detecting that the measurement information does not indicate a normal process condition, and triggering an alarm signal. Komiyama is not directed to preventing a vapor phase reaction and quickly changing the chamber atmosphere.

As set forth above, the present invention comprises: (1) supplying one gas from among a plurality of gases by gas supply means; (2) measuring the amount of the introduced gas contained in an exhaust gas; and (3) supplying another gas into a chamber when the measurement of the introduced one gas falls below a predetermined value. Accordingly, the present invention comprises gas supply means to change the chamber atmosphere by introducing a gas from among a plurality of gases, while Komiyama does not disclose such a gas supply means. Rather, Komiyama comprises: (1) measuring the amount of an exhaust gas; (2) comparing with normal process conditions; (3) triggering an alarm signal upon detection of an abnormal condition; and (4) controlling process conditions.

Further, the present invention comprises measuring the amount of one gas that has been already introduced and, upon the measurement of the one introduced gas failing below a predetermined value, introducing another gas into the chamber. In contrast, Komiyama comprises measuring the amount of an exhaust gas and, upon detecting an abnormal condition, triggering an alarm signal.

The present invention and Komiyama differ vastly in terms of the purpose of measurement and operation thereafter. In particular, Komiyama does not comprise supplying another gas based on measurements. Therefore, Komiyama does not disclose or suggest the processing device recited in claim 6 or the method recited in claim 17.

The rejection of claims 8-11 under 35 U.S.C. § 103(a) as allegedly unpatentable over Komiyama in view of U.S. Patent Application Publication No. 2003/0185966 ("Kim") and the rejection of claims 18 and 21 under 35 U.S.C. § 103(a) as allegedly unpatentable over Komiyama in view of Kim are respectfully traversed with respect to the amended claims.

Regarding amended independent claims 8 and 18, the present invention comprises measuring the amount of a pollutant contained in an exhaust gas and starting a cleaning process. As noted above, Komiyama comprises: (1) measuring the amount of an exhaust gas; (2) comparing with normal process conditions; (3) triggering an alarm signal upon detection of an abnormal condition; and (4) controlling process conditions.

The Office Action cites Kim for disclosure of "a substrate processing chamber with a cleaning means" (page 5) and "a method of cleaning a substrate processing chamber in which an energized cleaning gas is supplied to the chamber, and monitoring the cleaning process based on chemiluminescent radiation emitted from the chamber surface" (page 9). Applicants respectfully submit that Kim comprises detecting an endpoint of a cleaning process.

The present invention comprises measuring the amount of particles contained in an exhaust gas *to determine whether to start a cleaning process* (i.e., "wherein said pollutant is particles and said control means cleans inside said chamber when an amount of said particles in said exhaust gas

becomes equal to or greater than a predetermined amount”). In contrast, Kim comprises detecting an endpoint of a cleaning process.

The present invention and the proposed combination of Komiyama and Kim differ vastly in terms of detecting target and operation. Therefore, the proposed combination of Komiyama and Kim does not disclose or suggest the processing device recited in claim 8 or the method recited in claim 18.

The rejection of claim 12 under 35 U.S.C. § 103(a) as allegedly unpatentable over Komiyama and further in view of U.S. Patent No. 5,569,837 (“Hinaga”) is respectfully traversed with respect to the amended claims.

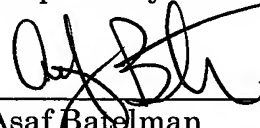
Hinaga, cited in the Office Action for disclosure of “a detector for desorption [sic] using a mass spectrometer” (page 6), fails to cure the above-noted deficiencies with regard to Komiyama (and Kim). In particular, Hinaga fails to disclose or suggest measuring the amount of particles contained in an exhaust gas to determine whether to start a cleaning process (*i.e.*, “wherein said pollutant is particles and said control means cleans inside said chamber when an amount of said particles in said exhaust gas becomes equal to or greater than a predetermined amount”). Therefore, the proposed combination of Komiyama and Hinaga does not disclose or suggest the processing device recited in claim 12.

In view of the foregoing, the application is respectfully submitted to be in condition for allowance, and prompt favorable action thereon is earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #101246.55144US).

Respectfully submitted,



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